

## Endocrinology-2015 : Endocrine dysfunction in severe Falciparum Malaria - Manoj Kumar Mohapatra - V S Medical College and Hospital

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Still in the second decade of 21st century there is no abatement of malaria. Each year there are about 1 million deaths globally and mostly due to severe falciparum malaria. Severe falciparum malaria causes multi organ dysfunction with different grades of severity that cause death. We postulate that endocrine system might have been affected in malaria influencing the outcome. To study this hypothesis we conducted this research at V.S.S. Medical College, Burla, Odisha, India. We have included 122 patients of severe falciparum malaria. The diagnosis was made with detection of asexual form of P.falciparum from peripheral blood smear. Severe malaria was diagnosed according to the guidelines of World Health Organization. On admission, peripheral blood smears were collected for Giemsa staining and subsequently every 12 hours to assess parasitemia. Blood was collected for estimation of glucose, urea, creatinine, sodium, albumin, bilirubin, AST, ALT, and for complete blood count. We estimated serum cortisol, Parathormone, Vitamin D, Ca, Mg, T3, T4, TSH, Insulin, erythropoietin. Insulin resistance was assessed by HOMA model. The study showed relative deficiency of cortisol ( $22.7 \pm 2.4 \mu\text{g/dl}$ ) and erythropoietin ( $262.8 \pm 86.5 \text{ mU/mL}$ ), low Vit-D ( $27.51 \pm 16.25 \text{ ng/ml}$ ), insensitivity of parathormone inspite of high level ( $5.4 \pm 2.8 \text{ pg/ml}$ ). Serum ionized calcium is low ( $1.1 \pm 0.1 \text{ mmol/L}$ ) and phosphorus was high ( $4.5 \pm 2.1 \text{ mg/dl}$ ). There is high insulin resistance with abnormal thyroid function. The present study showed that severe falciparum malaria causes multiple endocrine dysfunctions that affect the outcome adversely. The endocrine framework is a synthetic delegate framework including input circles of the hormones discharged by inward organs of a living being legitimately into the circulatory framework, managing far off objective organs. In people, the significant endocrine organs are the thyroid organ and the adrenal organs. In vertebrates, the nerve center is the neural control place for every single endocrine framework. The investigation of the endocrine framework and its issue is known as endocrinology. Endocrinology is a part of inside medicine. Various organs that signal each other in grouping are normally alluded to as a pivot, for example, the hypothalamic-pituitary-adrenal hub. Notwithstanding the specific endocrine organs referenced above, numerous different organs that are a piece of other body frameworks have auxiliary endocrine capacities, including bone, kidneys, liver, heart and gonads. For instance, the kidney secretes the endocrine hormone erythropoietin. Hormones can be amino corrosive edifices, steroids, eicosanoids, leukotrienes, or prostaglandins. The endocrine framework can be differentiated to both exocrine organs, which emit hormones to the outside of the body, and paracrine motioning between cells over a moderately short separation. Endocrine organs have no pipes, are vascular, and regularly have intracellular vacuoles or granules that store their hormones. Interestingly, exocrine organs,

for example, salivary organs, sweat organs, and organs inside the gastrointestinal tract, will in general be substantially less vascular and have channels or an empty lumen. A hormone is any of a class of flagging atoms delivered by organs in multicellular living beings that are moved by the circulatory framework to target inaccessible organs to control physiology and conduct. Hormones have assorted substance structures, principally of 3 classes: eicosanoids, steroids, and amino corrosive/protein subordinants (amines, peptides, and proteins). The organs that emit hormones contain the endocrine framework. The term hormone is now and again stretched out to incorporate synthetic concoctions created by cells that influence a similar cell (autocrine or intracrine flagging) or close by cells (paracrine flagging). Hormones are utilized to convey among organs and tissues for physiological guideline and conduct exercises, for example, processing, digestion, breath, tissue work, tangible observation, rest, discharge, lactation, stress, development and advancement, development, proliferation, and mood. Hormones influence far off cells by authoritative to explicit receptor proteins in the objective cell bringing about an adjustment in cell work. This may prompt cell type-explicit reactions that incorporate fast changes to the movement of existing proteins, or more slow changes in the declaration of target qualities. Amino corrosive based horm face of target cells by means of sign transduction pathways; steroid hormones, being lipid-solvent, travel through the plasma films of target cells to act inside their cores. Illnesses of the endocrine framework are common,[8] including conditions, for example, diabetes mellitus, thyroid malady, and heftiness. Endocrine infection is described by misregulated hormone discharge (a profitable pituitary adenoma), wrong reaction to flagging (hypothyroidism), absence of an organ (diabetes mellitus type 1, reduced erythropoiesis in incessant kidney disappointment), or basic growth in a basic site, for example, the thyroid (harmful multinodular goiter). Hypofunction of endocrine organs can happen because of loss of save, hyposecretion, agenesis, decay, or dynamic pulverization. Hyperfunction can happen because of hypersecretion, loss of concealment, hyperplastic or neoplastic change, or hyperstimulation. Endocrinopathies are named essential, auxiliary, or tertiary. Essential endocrine malady represses the activity of downstream organs. Optional endocrine ailment is characteristic of an issue with the pituitary organ. Tertiary endocrine infection is related with brokenness of the nerve center and its discharging hormones. As the thyroid, and hormones have been ensnared in flagging far off tissues to multiply, for instance, the estrogen receptor has been demonstrated to be associated with certain bosom diseases. Endocrine, paracrine, and autocrine flagging have all been embroiled in expansion, one of the necessary strides of oncogenesis. Other basic sicknesses that outcome from endocrine brokenness incorporate Addison's illness,

Cushing's malady and Graves' infection. Cushing's infection and Addison's ailment are pathologies including the brokenness of the adrenal organ. Brokenness in the adrenal organ could be because of essential or auxiliary factors and can bring about hypercortisolism or hypocortisolism .

### **Biography**

Manoj Kumar Mohapatra is presently working as Professor and Head, Dept. of Medicine. He has a bright academic career. He has published

about 100 publications in reputed journals. For his research in malaria he received 5 National awards by different associations of India and Fellowship by World Health Organization. He has authored a book on Methods in Clinical Research.

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